

TESTIMONY OF
THOMAS MCCAUSLAND
PRESIDENT AND CEO
SIEMENS MEDICAL SOLUTIONS, CHAIRMAN
SIEMENS FOUNDATION
BEFORE
COMMITTEE ON COMMERCE, SCIENCE, TRANSPORTATION
SUBCOMMITTEE ON TECHNOLOGY, INNOVATION AND COMPETITIVENESS
APRIL 26, 2006

Mr. Chairman, Ranking Member and other members of the committee, good morning. Thank you for inviting me today and for giving Siemens the opportunity to discuss our perspectives on the role of math and science education to innovation and maintaining U.S. competitiveness. My name is Thomas McCausland, and I am the chairman of the Siemens Foundation as well as the President and CEO of Siemens Medical Solutions headquartered in Malvern, PA. Mr. Chairman, with your permission, I would like to insert my written statement in the hearing record, and I will provide a brief summary.

As one of the world's leading engineering and technology companies, Siemens has long recognized the importance that innovation plays in staying competitive in the global economy. Siemens invests heavily in innovation by dedicating \$900 million dollars a year to research and development here in the United States alone, where we have close to 7,000 employees working specifically in this field. Globally, Siemens spends \$5.2 billion a year with 70,000 employees in R&D, filing close to 26 patents per day.

So, as you can see, making sure that we have enough highly skilled and qualified scientists, mathematicians, and engineers is a priority for us. Because without them, we will not be able to make advancements on the technologies that we have today. Just how important is it to have enough scientists, mathematicians, and engineers? Seventy-five percent of Siemens products have been developed over the last five years.

Innovation and growth are not possible without highly qualified and educated scientists, mathematicians and engineers. And it is absolutely imperative that we do everything that we can to keep up with the growing global demand for these minds if the United States is to maintain its competitive edge on the global arena.

Siemens applauds the efforts of Senator Ensign and others on the Committee for their efforts in focusing Congressional attention on the potential harm of a U.S. innovation deficit caused by a lack of commitment to long-term research and development and math, science and technology education excellence. By raising the bar through programs like the National Innovation Act and the American Competitiveness Initiative, we feel that we can achieve the goals of enrolling more students in master's programs and graduate research fellowships, and produce the 10,000 more scientists, students, post-doctoral fellows and technicians in addition to 100,000 highly qualified math and science teachers that we need by 2015. While Government is obviously the primary force moving us forward, we at Siemens and as well as our colleagues at other corporations in the private sector are also working to challenge and motivate the next generation of engineers and scientists. In fact, fifteen national business organizations, led by the Business Roundtable, have joined together in a coalition to support action on this issue at all levels of government: Federal, State and local, as well as by the private sector, including parents, educators and community leaders. The coalition called:

Tapping Americas Potential, has set a goal of doubling the number of Bachelors degrees awarded annually to U.S. students in Science, Technology, Engineering and Math.

To give you some examples of what we at Siemens are doing, we recently created Siemens Science Days – a program designed to spark an interest in math, science and engineering among 4th and 5th graders. We are doing this by using our 70,000 employees located in all 50 states, to go out to the schools in their communities to show students the exciting opportunities in these fields through real world examples and through hands on activities. Since the inception of this program just over a year ago, we have reached close to 5000 students in 13 states.

However, we cannot expect students to become scientists and engineers if we do not keep encouraging them and challenging them throughout their schooling. That is why we also reward students who pursue studies and excel in these fields by awarding scholarships through our Siemens Awards for Advanced Placement and the Siemens Competition in Math, Science and Technology.

The Siemens Awards for Advanced Placement recognize the top male and female student from *each* state who has scored the highest in their math and science Advanced Placement exams, by presenting them with a \$2,000 college scholarship, in addition to a top national male and female winner, who receives a \$5,000 scholarship. We also recognize one teacher and one school from *each* state with a \$1,000 award for their math and science programs.

The Siemens Competition in Math, Science, and Technology is the Nation's premier science and math research competition for high school students, where we award approximately \$750,000 in scholarships annually to students and the top student and team each wins a college scholarship of \$100,000. To give you an idea of just what it takes to win the Siemens Competition, the most recent winner, Michael Viscardi, solved the 19th century Dirichlet problem, which can be used to calculate the amount of heat at any point across the surface of an object. The previous year's winner, Aaron Goldin, invented a gyroscopic generator that uses the movement of ocean currents to generate electricity.

While these are truly incredible students, their achievements would not be possible without the dedication and mentoring provided by their teachers and schools. So to ensure that we continue to have excellent teachers, we not only award grants to teachers and schools through the Siemens Awards for Advanced Placement, but also through the Siemens Competition, where we recognize schools with a \$2,000 award for each project from their school that makes it to the regional finalist level.

We are proud of the teachers we have now, however we also want to make sure that we continue to have excellent teachers in the future. That is why just this past year, we partnered with the United Negro College Fund and the Thurgood Marshal Scholarship Fund to award scholarships to students studying at the Nation's historically black colleges and universities who are training to become teachers in math and science.

Since we launched our programs, we have awarded 512 scholarships through the Siemens Competition; 250 scholarships to students, as well as 180 awards to teachers and 129 to schools through the Siemens Awards for Advanced Placement; and 40 scholarships through the Siemens Teacher Scholarships.

But we are not the only ones who place a high priority on education initiatives. As a founding member of the Business Education Network, which is an affiliate of the US Chamber of Commerce, we are working closely with colleagues at other leading companies from across the Nation to make sure that we as businesses are doing our part to foster and challenge tomorrow's innovators. Additionally, we are also on the board at the Business Roundtable, which is committed to advocating public policies that ensure vigorous economic growth, a dynamic global economy, and the well-trained and productive U.S. workforce essential for future competitiveness.

So why are we so focused on making sure that we have enough highly skilled and qualified scientists and engineers in the coming generations? The innovations that these brilliant young people create are the lifeblood of Siemens and the millions of Americans we serve.

For instance at the moment, Siemens radiation therapy systems treat 30,000 cancer patients every day; our lighting and control systems operate at 65 of the nation's 100 busiest airports, to ensure that air travel continues safely and efficiently; our power generation equipment produces one third of the nation's electricity; our water filtration plants filter enough clean drinking water to fill 750,000 bottles; and our building automation, fire safety and security solutions in over 35,000 North American facilities help ensure that we live and work in safe and energy efficient buildings.

If we do not have the next generation of scientists, mathematicians or engineers, then who is going to develop the next life saving cancer therapy equipment? Or ensure that we can meet the growing demand for energy in this country with the most efficient and environmentally friendly technology? Or provide enough clean drinking water for our families? Or develop more advanced building technologies to give us the peace of mind that we are living and working in the safest buildings?

As Benjamin Franklin pointed out, "investment in knowledge pays the best interest", and we need to make sure that we are investing heavily in our students. They are the future of our Nation, and the better we prepare them today, the more our Nation will advance tomorrow.

We are encouraged that the Committee is exploring the education issues necessary to keeping America at the innovation forefront. As you consider the Committee's program and begin to address the educational problems of this country, we would like to take the opportunity to offer you the assistance of Siemens. We look forward to working with Congress and the Administration to help identify ways to work more collaboratively in helping to prepare today's students to become tomorrow's inventors.

Thank you again for allowing me to testify. I look forward to answering any questions that you might have.